

As manufacturer of safety equipment, the Cobianchi Lifteile AG company is responsible for the design and manufacture of the Cobianchi progressive safety gears.

In order to make the production, the distribution, and the maintenance of our progressive safety gears easier for the manufacturers of the framework and for the installation companies, these operating instructions have been established.

These operating instructions document the standard version PC400E. If your installation type differs from the versions described in these instructions, please contact your technical office or the responsible construction department.

In the following you will find important notes, which if properly observed will contribute to an impeccable installation and operation.

The following drawing has to be enclosed with these operating instructions:

Drawing no.	Progressive safety system	Front view, top view, side view
400E-BA01-1	PC400E	Assembly drawing FV with Pos. no.

These operating instructions consist of some pages of text (number depending on the language) and one drawing. Customer-specific solutions may require deviating installation sequences. The progressive safety system can be installed on top of or underneath the cabin. The lifter rope engagement takes place at the draw-in lifters (Pos. 10). For detailed information, please refer to our technical documentation.

**Subject to deviations from the standard versions described here.**

**To be observed prior to the installation:**

The PC400E progressive safety gear system consists of two pairs of approved PC200E progressive safety gears. All performance specifications on the type plates apply to one pair consisting of two adjusted and sealed safety gear heads (Pos. 1). The same serial numbers are embossed on two safety gear heads (Pos. 1). These numbers must correspond to the serial number on the type plates attached and enclosed and must be able to be allocated to the serial number of the installation. If this is not the case, then a mistake has been made and it is necessary to refer back to the purchasing department, your own stores department or directly with the manufacturer.

**1. Assembly**

**1.1. Assembly and alignment of safety gear heads**

As a standard, delivery is made in fully assembled and adjusted condition, with two safety gear heads (Pos. 1) each, serially, vertically arranged after each other in gusset plates (Pos. 4). Support plates (Pos. 3), lifter shaft (Pos. 2), stop-triggering bushing (Pos. 2a) and limit switch (Pos. 7) are mounted to the safety gear rope side.

The gusset plates (Pos. 4) have to be screwed to the frame using a sufficient number of M20 screws. In the area of the hanging brackets the screws have to be screwed directly in the housings of the basic unit (Pos. 1). Secure absorption of the torque acting on the frame structure via the gusset plates (Pos. 4) during the brake process must be ensured.

For impeccable function of the brake unit it must be ensured that the distance of the brake shoes (Pos. 11) from the left- and the right-hand side of the guide rail running surface is equal. If necessary, ensure exact position by moving the guide shoes and secure against displacement.

For additional stabilization, the support plates (Pos. 3) can be secured at the safety gear frame using M12 screws.

**1.2. Mounting of connection shafts between safety gear heads**

The connection shafts are not supplied by Cobianchi Lifteile AG.

Connect the structural steel tubes cut to suitable length (centre distance 230mm) 20x20x2.5 or 3mm according to DIN2395-3 to the square section release shaft coupler (Pos. 6) and tighten bolts and lock nuts.

**After assembly of connection shafts has been completed, check that the linkages can be rotated easily by hand. Make sure that no excessive torsion occurs within the connection shafts. The draw-in lifters (Pos. 10) of the four safety gear heads must engage on both guide rails simultaneously. In the case of great centre distances, the connection shafts should be reinforced, for example by means of round pipes, and if necessary, additionally supported in order to prevent sagging. If required, the adjusting flange can be ordered as accessory.**

### 1.3. Assembly of support plates and lifter

If not already preassembled, the support plates (Pos. 3) have to be screwed to the gusset plate (Pos. 4) on the safety gear rope side. Position stop-triggering bushings (Pos. 2a) and insert lifter shafts (Pos. 2). The roller of the limit switch (Pos. 7) must be positioned in the recess of the triggering bushing (Pos. 2a). Then secure lifter (Pos. 2) at the draw-in lifters (Pos. 10) and lifter shafts (Pos. 2) by means of the bolts (Pos. 8). Before tightening the bolts and lock nuts, check that the draw-in lifters (Pos. 10) are in neutral position (safety gears fully open) and the lifter (Pos. 2) and support plates (Pos. 3) are parallel, when viewed from above. Then tighten all bolts and lock nuts. Now check that the lifters (Pos. 2) can be moved freely from the initial position.

### 1.4. Mounting of double safety rope connector to the two lifters

Connect the adjustable safety rope connector (Pos. 5) to the lifter (Pos. 3) by means of the two pins, insert rubber rings and secure pins by means of splint. Check locking. If required, a vertically adjustable safety rope connector is available from Cobianchi as special accessory.

Before hooking in the release mechanism tension spring (Pos. 12) at the safety gear frame (tension spring by 5-10mm) check manually that the engaging lever system moves smoothly.

### 1.5. Type plates

Before attaching the enclosed type plates in a clearly visible position of the frame, the intended surface must be cleaned and be completely dry. The adhesive surfaces of the type plates must not be touched over a large surface. After adhering press firmly.

### 1.6. Indicating label for oiled rails

Every progressive safety system for use with oiled rails is supplied with a yellow indicating label. This should be attached in a clearly visible position (e.g. on rail oiler). Only an ordinary machine oil of the viscosity class ISO VG 68-150 must be used without any extreme-pressure additives (lubrication oil C according to DIN 51517, part 1). Because lubricating oils for gearboxes, engines or hydraulic units frequently contain additives, they are not suitable for this application.

## 2. Connection

Wire limit switch (230 V, 4 A) (Pos. 7) and check function.

Connect safety gear rope with rope end connections of safety rope connector (Pos. 5) at lifter (Pos. 2).

The release force at the lifters (Pos. 2) required for the safety gears to engage is approximately 350-400N. It must be ensured that the tensile force in the limiter rope generated by the released speed limiter is at least 2 times the force required for the safety gears to engage (however, at least 300N).

## 3. Commissioning

In all cases, dirt, rust-protection, and eventual paint coats have to be removed from the guide rail running surfaces. This is made best using cold cleaning agents or brake disk cleaning agents.

In the case of oiled rails the lubrication oils C recommended according to the yellow indicating label should be used (DIN 51517, part 1, viscosity ISO VG 68-150).

## 4. Maintenance

If the progressive safety system has been correctly installed, then the maintenance is limited to the following checks:

### 4.1. Condition of rails:

according to above commissioning instruction

### 4.2. Triggering linkage:

Synchronous response of engaging lifters (Pos. 10), connection of connection shafts, free and smooth movement of lifters (Pos. 2) in the respective direction.

### 4.3. Limit switch:

Correct electrical/mechanical functioning, actuation ensured

### 4.4. Safety gear heads:

centred, clean

### 4.5. Guide-ways of cabin:

In an impeccable condition.

### 4.6. Cleanliness:

In general and in particular in the case of building construction elevators and conversions of existing installations: make sure that the safety gear heads are protected against contamination with plaster, concrete, cement, mortar, gravel or other materials. Contaminated safety gear heads have to be dismantled and cleaned.

If these simple instructions are followed, then the safety for the users of the elevator as well as for the installation company can be increased significantly.

